
GPS AutoSteer System

Hardware Installation Manual



Supported Vehicles

Case Accuguide Ready Combines

7010

7120

8010

8120

9120

LEGAL DISCLAIMER

Note: Read and follow ALL instructions in this manual carefully before installing or operating the AutoSteer system.

Note: Take careful note of the information in the Safety Information section and throughout this manual.

The manufacturer disclaims any liability for damage or injury that results from failure to follow the instructions and warnings set forth herein.

Please take special note of the following warnings:

1. There is NO obstacle avoidance system included in the manufacturer's product. Therefore, users must always have an operator on the equipment when the AutoSteer system is in use to look for any obstacles including people, animals, trees, ditches, buildings, etc.
2. During installation of the AutoSteer system and during the Calibration and Tuning processes the vehicle's wheels turn from side to side and the vehicle moves. Be sure that all people and obstacles are clear of the vehicle before installation, calibration and tuning, or use of the AutoSteer system.
3. Use of the AutoSteer system is NOT permitted while equipment is on public roads or in public areas. Ensure that the system is OFF before driving on roads or in public areas.

Special Requirements

Tools

This list consists of the tools required to complete the installation. The installer is assumed to have a complete set of common installation tools.

10mm wrench	3/8" wrench	#1 Phillips screwdriver
13mm socket and ratchet	7/16" wrench	#2 Phillips screwdriver
13mm wrench	1/2" wrench	#2 Phillips stubby screwdriver
14mm wrench	9/16 wrench	Hack saw
24mm socket and ratchet	5/8 wrench	13/64" drill bit
24mm wrench	5/8 socket and ratchet	drill
4mm Allen wrench	3/16" Allen wrench	Side cutters
5mm Allen wrench	1/8" Allen wrench	Tape measure 12 ft (3.6 m) minimum



Safety Information

Warning Statements

The AutoSteer system installer and manufacturer disclaim any responsibility for damage or physical harm caused by failure to adhere to the following safety requirements:



- As the operator of the vehicle, you are responsible for its safe operation.
- The AutoSteer system is *not* designed to replace the vehicle's operator.



Note: Verify that all screws, bolts, nuts, hose connections and cable connections are tight after the final installation of the AutoSteer system on the vehicle.



	<div data-bbox="670 779 933 821"> WARNING</div> <p data-bbox="435 848 1091 936">To avoid electrical shock hazards, remove the Roof Module from the vehicle before driving under low structures or low electrical power lines.</p>
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	<div data-bbox="670 1083 933 1125"> WARNING</div> <p data-bbox="435 1152 1091 1241">Ensure that you are in a stable position on the vehicle platform when installing or removing the Roof Rail and Roof Module so you do not fall.</p>
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	<div data-bbox="670 1388 933 1430"> WARNING</div> <p data-bbox="435 1457 1091 1545">To prevent accidental death or injury from being run over by the vehicle, never leave the vehicle's operator chair with the system engaged.</p>
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	<div data-bbox="664 294 937 338"> WARNING</div> <p data-bbox="436 365 1081 480">To understand the potential hazards associated with the operation of AutoSteer equipment read the provided documentation before installing the AutoSteer system on a vehicle.</p>
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	<div data-bbox="664 596 937 640"> WARNING</div> <p data-bbox="436 667 1081 783">To prevent the accidental engagement of steering and loss of vehicle control while driving on roads, shut down the AutoSteer system (exit the program). Never drive on roads or in public areas with the AutoSteer system turned on.</p>
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	<div data-bbox="664 898 937 942"> WARNING</div> <p data-bbox="436 970 1081 1085">Do not stand close to the wheels and do not move the machine while you are adjusting the relief valve. Turn off the engine and engage the parking brake before standing under or next to the machine.</p>
--	--



Caution Alerts





The AutoSteer system installer and manufacturer disclaim any responsibility for damage or physical harm caused by failure to adhere to the following safety requirements:

	 CAUTION
	The Roof Module must be removed when transporting or driving the vehicle at speeds above 30 mph (50 km/h). The Roof Module can possibly detach due to wind loads at higher speeds.

	 CAUTION
	The AutoSteer system does not detect obstacles in the vehicle's path. The operator must observe the path being driven in order to avoid obstacles.

	 CAUTION
	When engaged, the AutoSteer system controls only the steering of the vehicle. The operator must control the speed of the vehicle.

	 CAUTION
	The AutoSteer system must be powered OFF when installing or removing the Roof Module.

	<table border="1"><tr><th data-bbox="428 277 1089 348"> CAUTION</th></tr><tr><td data-bbox="428 348 1089 501"><p>The Roof Module must always be firmly secured to the Roof Rail using the hardware whenever the vehicle is in operation to prevent the Roof Module from releasing from its bracket and falling.</p></td></tr></table>	 CAUTION	<p>The Roof Module must always be firmly secured to the Roof Rail using the hardware whenever the vehicle is in operation to prevent the Roof Module from releasing from its bracket and falling.</p>
 CAUTION			
<p>The Roof Module must always be firmly secured to the Roof Rail using the hardware whenever the vehicle is in operation to prevent the Roof Module from releasing from its bracket and falling.</p>			

Important Information

Note: Verify that all screws, bolts, nuts, hose connections and cable connections are tight after the final installation of the AutoSteer system on the vehicle.

Technical Support

Refer to your owner's manual for technical support information.

Contact Information

Refer to your owner's manual for contact information.

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Installation Overview

This **Installation Overview** chapter contains part numbers, kit overview diagram, cabling diagram and the installation procedure

- *Vehicle Inspection*
- *Kit Overview*
 - *Kit Components*
 - *Sub-Assemblies*
 - *Bracket Kit Components*
 - *Common Kit Components*
- *Installation Procedure Outline*
- *Cable Diagram*

This installation guide describes the installation of the AutoSteer system on Case 7010, 8010, 7120, 8120, and 9120 Combines. The steering system installation kit PN: 188-0039-01 is used on this series of Combines. The vehicle specific sub-assemblies for the vehicle series are listed in *Table 1-1*.

Vehicle Inspection

Before installing this steering system, confirm the vehicle steering system is in good working order. Drive the vehicle and verify the vehicle's correct working order. Also, ensure the following system operations and components:

- Check to see if you can turn the steered wheels from lock to lock.
- Ensure the vehicle steers straight.
- Check for loose or worn steering components.
- Ensure the hydraulic fluid level is correct.
- Service the vehicle if the steering is not in good working order.
- Confirm the combine has the Accuguide valve and other components already installed.

Kit Overview

This Kit Overview section is divided into sub-sections for each of the sub-assemblies as shown in *Figure 1-1*. The components in each sub-assembly are described in the following sections.

Kit Components

Figure 1-1 Case AFX Kit Components (PN: 188-0039-01)

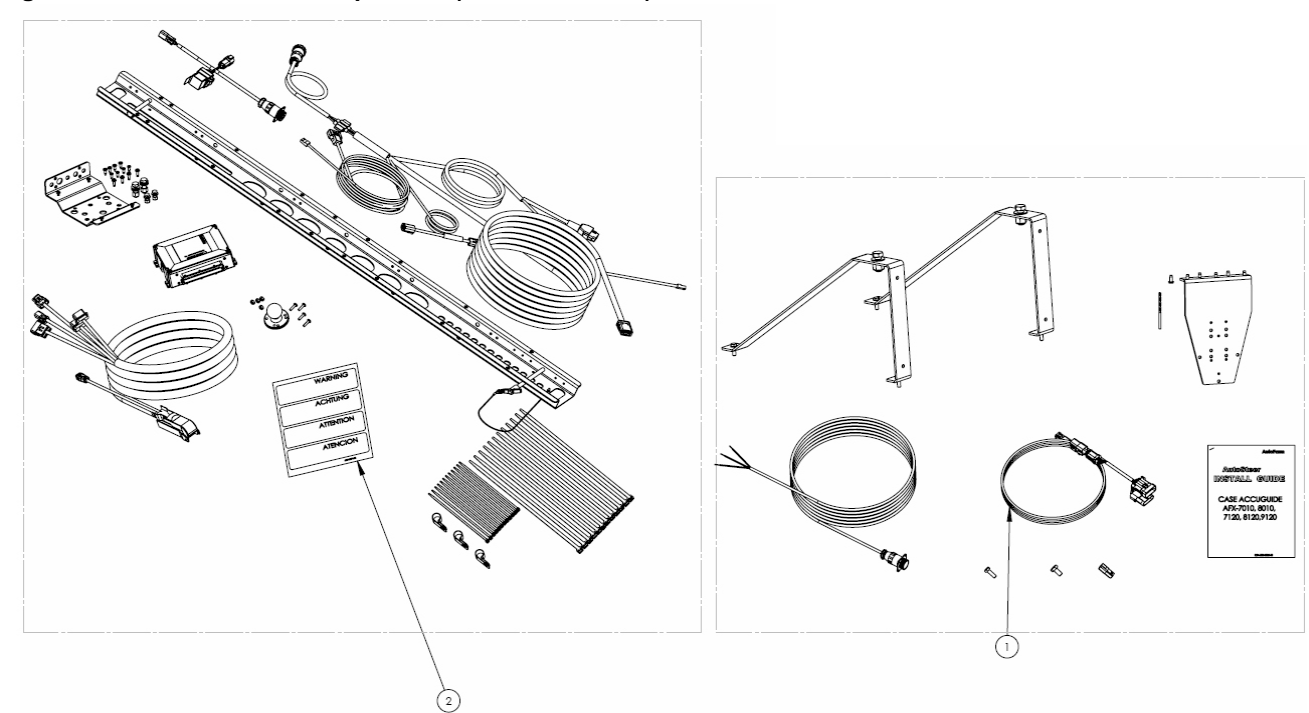


Table 1-1 Installation Kit Components (PN: 188-0039-01)

Item	Component	Part Number
1.	Bracket Kit	152-0030-01
2.	Common Kit (Wheeled without Valve)	153-0009-01

Sub-Assemblies

This vehicle installation kit contains the following components:

- *Bracket Kit Components*
- *Common Kit Components*

Bracket Kit Components

This sub-assembly is shown in *Figure 1-2* and its components are defined in *Table 1-2*.

Figure 1-2 Bracket Kit Components (PN: 152-0030-01)

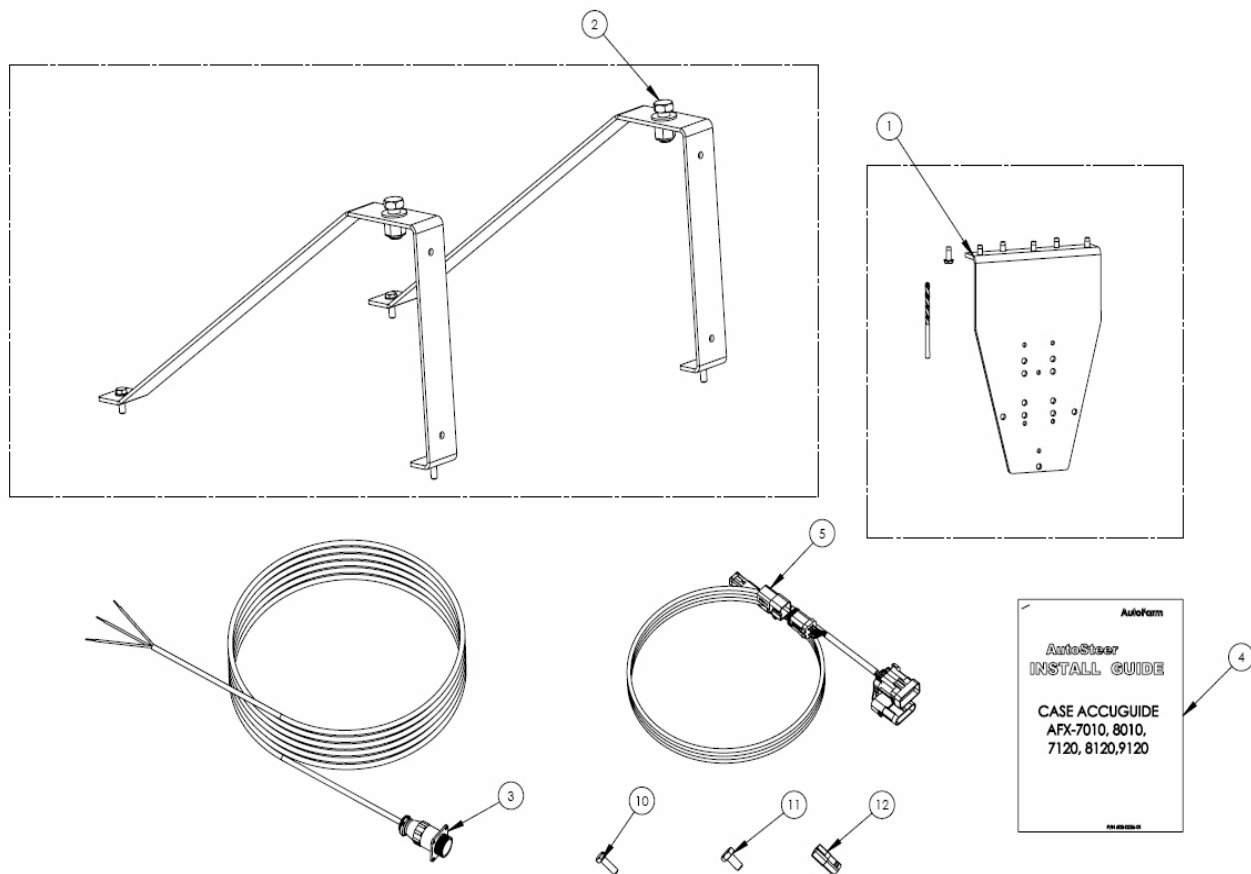


Table 1-2 Bracket Kit Components (PN: 152-0030-01)

Item	Component	Part Number
1.	Display Bracket Assembly	200-0173-02
2.	Roof Module Bracket Assembly	200-0167-01
3.	Battery Adaptor Power Cable	201-0156-01
4.	Installation Guide	602-0226-01
5.	Valve/Encoder Adaptor Cable	201-0438-01
10.	M8 Hex Head Bolt	513-0024-01
11.	M10 Hex Bolt	513-0019-01
12.	Steering Encoder	311-0342-01

Common Kit Components

This sub-assembly is shown in *Figure 1-3* and its components are defined in *Table 1-3*.

Figure 1-3 Common Kit Components (PN: 153-0009-01)

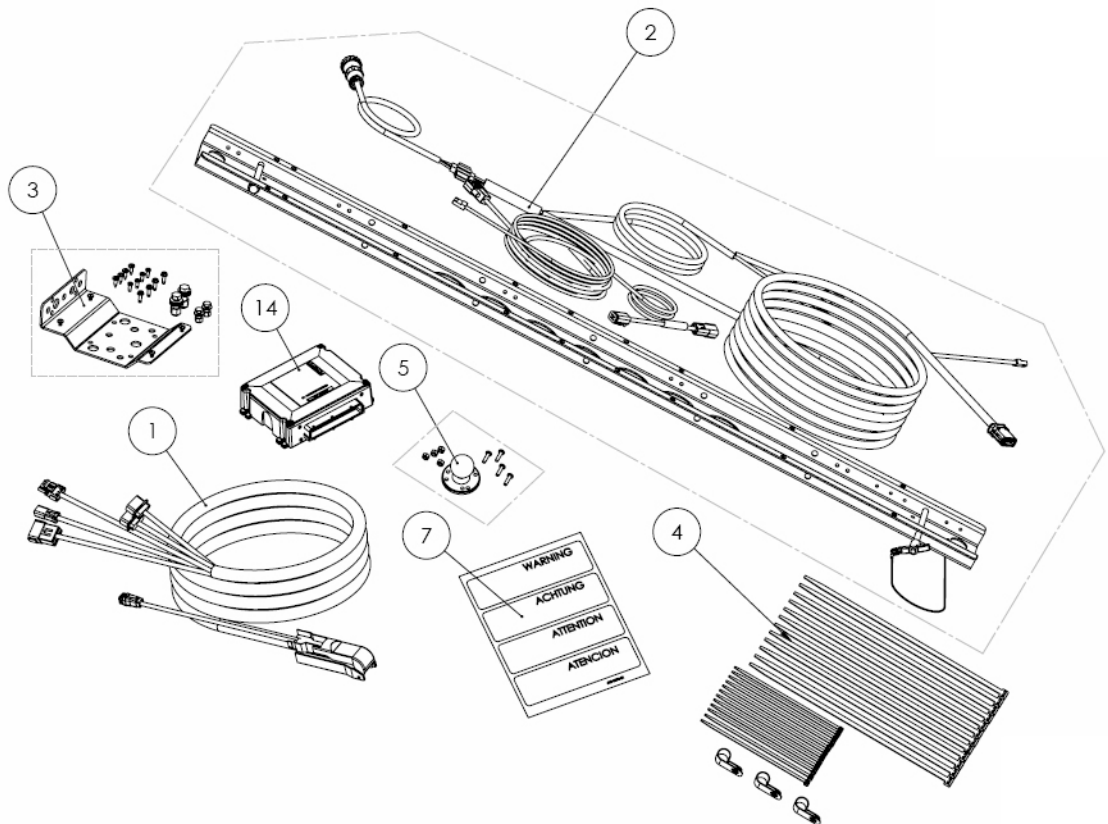


Table 1-3 Common Kit Components (PN: 153-0009-01)

Item	Component	Part Number
1.	SA Module Harness	201-0371-02
2.	Common Assembly Kit	200-0497-02
3.	SA Module Bracket	200-0190-01
4.	Mounting Hardware	200-0076-01
5.	Display Mounting Base	200-0508-01
7.	Warning Labels	603-0074-01
14.	SA Module Assembly	200-0206-01

Installation Procedure Outline

Note: The system interconnect cable diagram in the *Cable Diagram* on page 6 section of this chapter shows the AutoSteer electrical connections.

1. Verify that all components have been received.
-

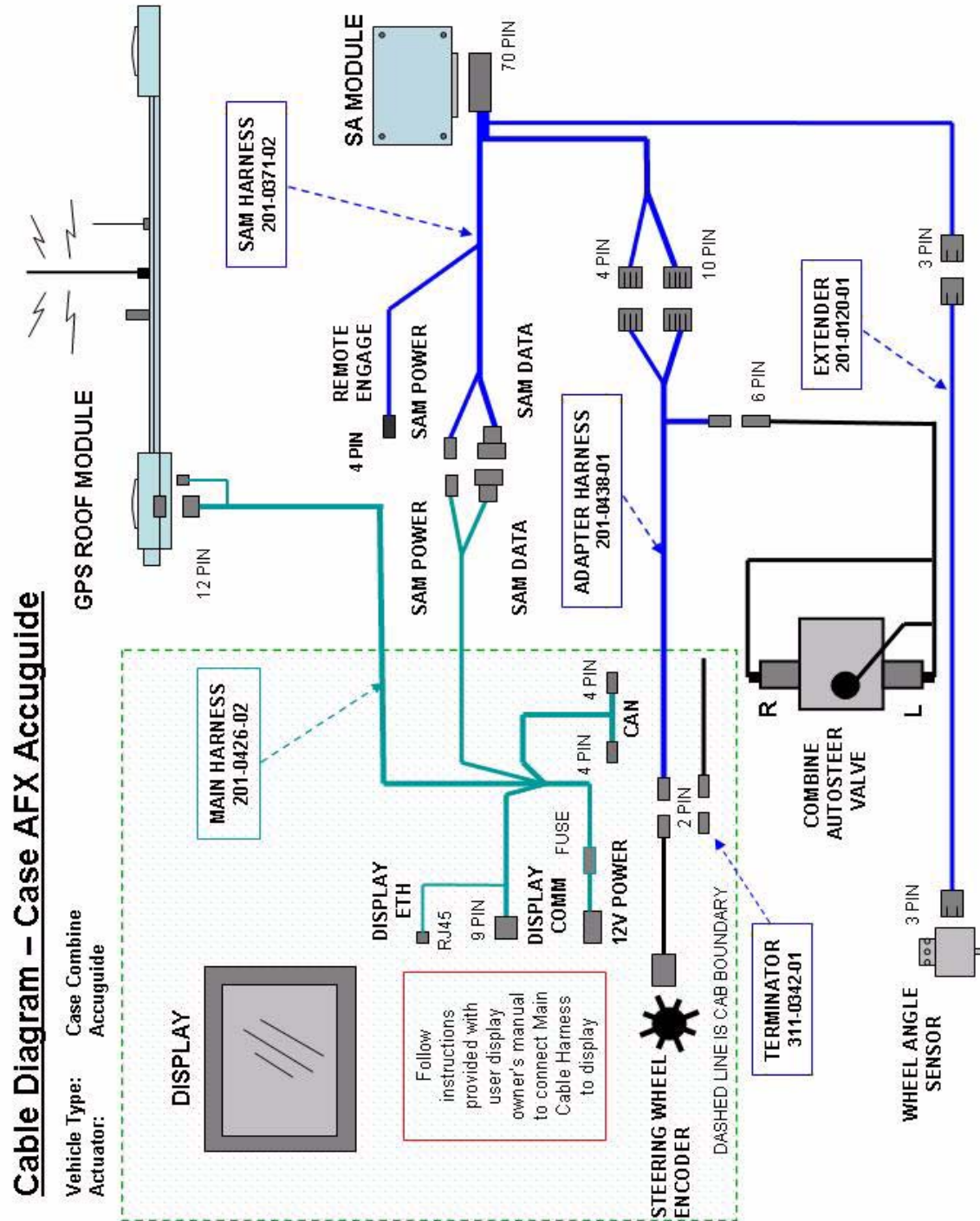
Note: Step 2, Step 3, Step 6, Step 7, and Step 9 are skipped if installing an electric steering actuator.

2. Install the Wheel Angle Sensor. (Optional)
 3. Install the SA Module.
 4. Install the Roof Rail on the cab roof.
 5. Install the Roof Module on the Roof Rail.
 6. Install the SA Module Harness.
 7. Install the Main Data Harness.
 8. Install the Display using a RAM Mount Arm.
 9. Connect the Main Data Harness to the Display Harness.
-

Note: Instructions for connecting the vehicle kit cables to the Display can be found in the Display owner's manual.

10. Verify that all connectors are properly coupled and secured.
11. Power ON the AutoSteer system.
12. Calibrate the vehicle.
13. Tune the vehicle.
14. Verify the system has been installed properly and operates satisfactorily.

Cable Diagram



Wheel Angle Sensor (WAS) Installation

This **Wheel Angle Sensor Installation** chapter information is provided in the following sections:

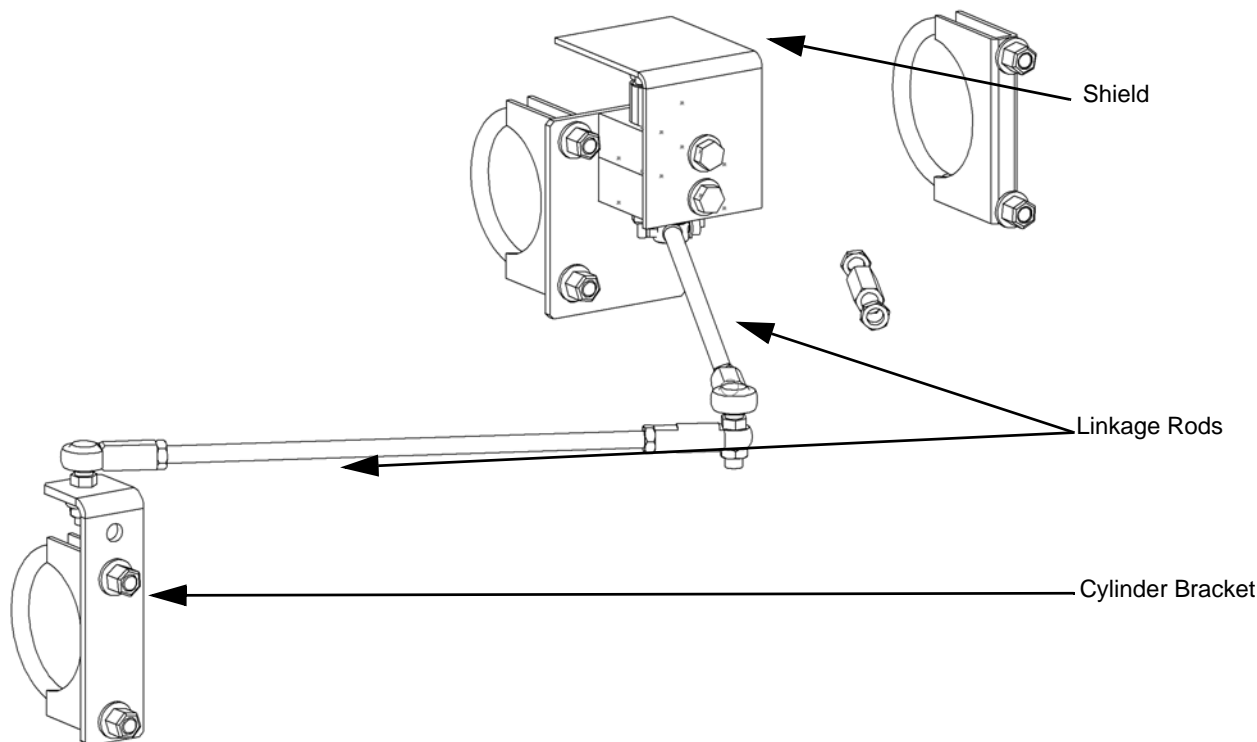
- *Installing Mounting Brackets*
- *Cut the Wheel Angle Sensor Rods to Length*
- *Assemble the Linkage Rod Hardware*
- *Attach the Wheel Angle Sensor Rods to Brackets and Adjust*

Note: The Wheel Angle Sensor is optional equipment and is not provided with the installation kit. The Wheel Angle Sensor installation instructions are provided for special installations, when required.

This **Wheel Angle Sensor** chapter provides the information necessary to install the Wheel Angle Sensor components.

Figure 2-1 shows the Wheel Angle Sensor assembly fully assembled.

Figure 2-1 Wheel Angle Sensor Components



Installing Mounting Brackets

1. Install the Wheel Angle Sensor bracket to the left-hand side steering cylinder as shown in *Figure 2-2*.

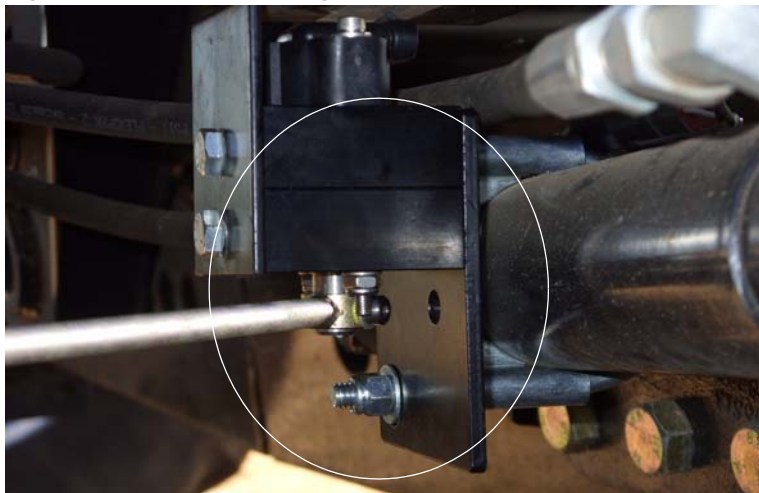
Figure 2-2 Secure Wheel Angle Sensor Bracket



2. Secure with a U-bolt.

Note: Use either the 2 3/4" or 3" U-Bolt according to the steering cylinder diameter. See *Figure 2-3*.

Figure 2-3 U-bolt Mounting



Note: Testing has shown the signal from the Accuguide cylinder sensor can be very noisy and lead to poor AutoSteer performance when connected to the steering system. Because of this, the Accuguide factory sensor is not supported. You must install the Wheel Angle Sensor for Accuguide vehicles using the steering system.

3. Secure the sensor to the bracket with the two bolts provided. See *Figure 2-4*.

Figure 2-4 Wheel Angle Sensor Bracket Bolted



Cut the Wheel Angle Sensor Rods to Length

4. Mount the linkage bracket in the position shown in *Figure 2-5*.

Note: Connect the threaded rods and use them as a guide to approximately position the mounting brackets on the cylinder and the tie rod, as shown in *Figure 2-5*. Then remove the rods so they can be cut to the appropriate length and then tested at full left and full right. The threaded linkage rods must be cut to the correct lengths before final assembly. See *Table 2-1* and *Table 2-2* for the cut and assembled linkage rod lengths.

Figure 2-5 Linkage Bracket



Cut the Wheel Angle Sensor Rods to Length

The Wheel Angle Sensor rods are shipped longer than they need to be. These rods must be cut to the proper length to allow the linkage rods to provide the Wheel Angle Sensor the maximum number of counts as the steering wheel is turned from full right to full left. Due to the variability of the possible mounting positions and axle options, it is left to the installer to verify the correct length for each individual installation and to cut the rods to length.

Table 2-1 provides the typical rod lengths that work for most installations. Before cutting the linkage rods to these measurements, verify that the Wheel Angle Sensor brackets can attach to the vehicle as shown in this manual and that they are attached the correct distance from any reference points shown. If the axle does not allow the Wheel Angle Sensor brackets to be installed as shown, do not cut the rods until it is determined what the proper lengths are for your installation. Due to possible variations in the mounting positions, these measurements could be different. These measurements are provided as a reference only. The installer is responsible for verifying that the provided measurements will work prior to cutting the rods.

Use a metal hack saw and vice, as show in *Figure 2-7*, to cut the Wheel Angle Sensor linkage rods to the proper lengths.

Note: It is advisable to attach a nut on the side of the metal rod that is going to be kept in order to clean the threads after the cut has been made.

The lengths of the rods are different depending on which side of the axle it is installed on. The table shows the lengths for both sides. Protect the threads from damage while cutting the rods. *Figure 2-6* shows where the measurements provided in *Table 2-1* are measured from.

Table 2-1 Linkage Rod Cut Lengths

Item	Length
Rod A	8.6 inches (219mm)
Rod B	11.8 inches (300mm)

Figure 2-6 Linkage Rod Cut Length Measurement Points

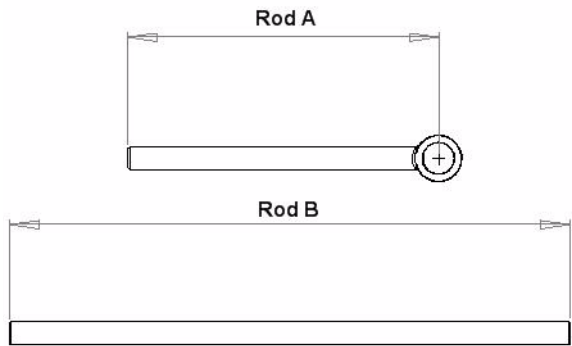
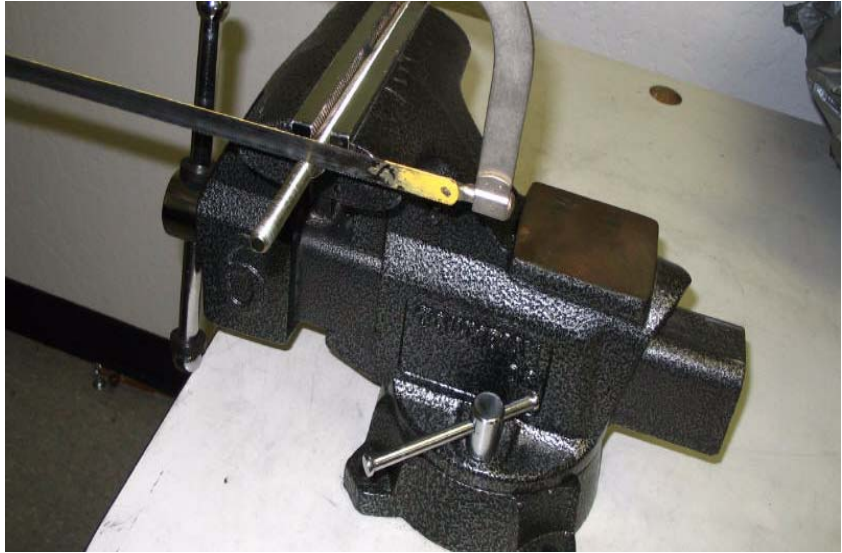


Figure 2-7 Linkage Rod Cutting



Note: The “after-assembly” center-to-center lengths of each linkage rod are shown in *Table 2-2*. *Figure 2-10* shows the measurement points for the assembled linkage rods.

Assemble the Linkage Rod Hardware

1. Attach a jam nut to the end of Rod A.
2. Connect the eye connector to the end of the Wheel Angle Sensor rod as shown in *Figure 2-8*.

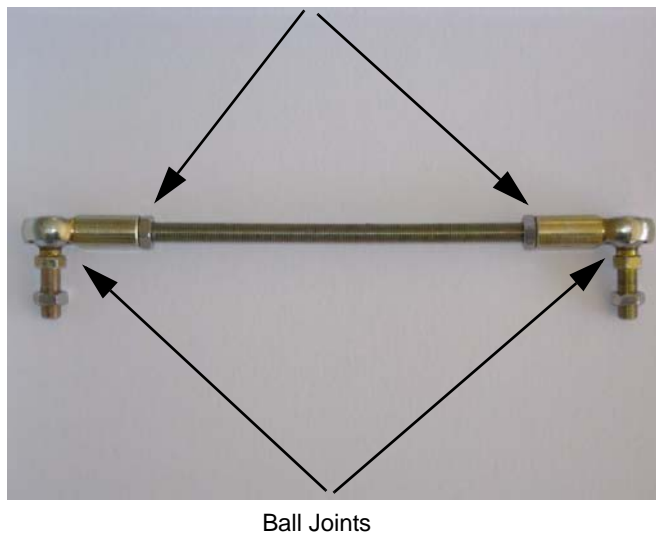
Figure 2-8 Rod A Assembled



3. Attach the jam nuts to each end of the linkage Rod B.
4. Attach the ball joints to both ends of the linkage arm as shown in *Figure 2-9*.

Note: The bolts for the ball joints should be facing the same direction as shown in *Figure 2-9* for this installation.

Figure 2-9 Linkage Rod Assembled
Jam Nuts

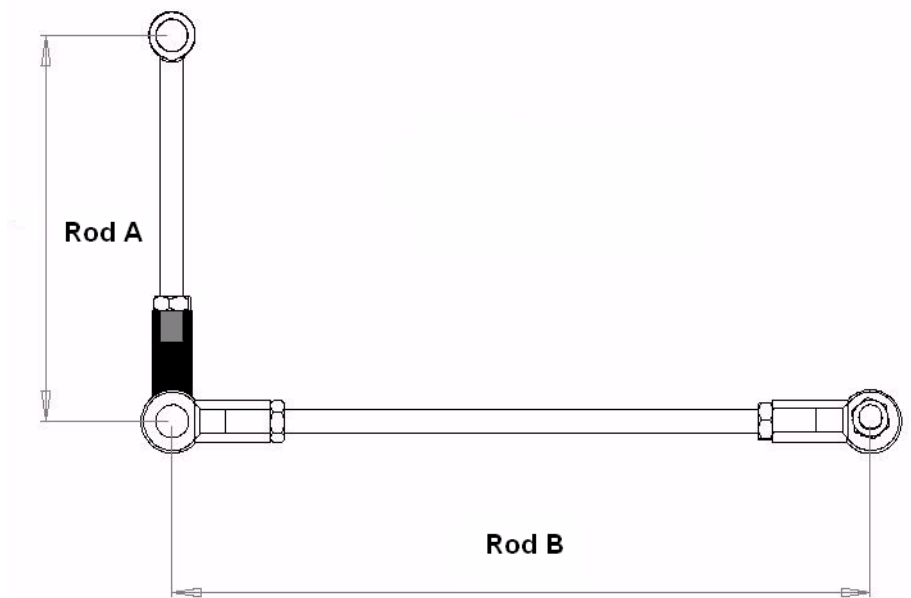


5. For most installations, use *Table 2-2* to adjust the lengths of the rod assemblies to the values shown. *Figure 2-10* shows where the measurement points for each rod are taken. Due to the variation of axle types and installation points, these measurements are provided as a reference only. Before connecting the steering rods and turning the steering axle verify that these lengths will work and the sensor will not be damaged.

Table 2-2 Assembled Linkage Rod Length

Item	Length
Rod A	9.6 inches (244mm)
Rod B	13.6 inches (346mm)

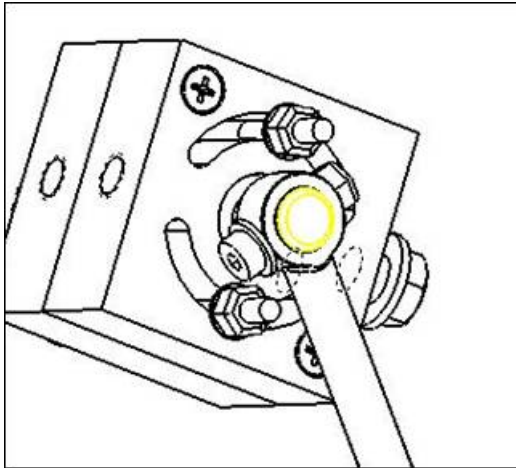
Figure 2-10 Assembled Linkage Rod Measurement Points



Attach the Wheel Angle Sensor Rods to Brackets and Adjust

1. Attach the Wheel Angle Sensor rod to the Wheel Angle Sensor. See *Figure 2-11*.

Figure 2-11 Attach Wheel Angle Sensor Rod to Sensor



Note: The flat washer goes on the bolt head side and NOT the nut side when attaching the arm. See *Figure 2-12*.

Figure 2-12 Place the Washer on Bolt Head Side



2. Tighten the Wheel Angle Sensor arm with a 3/8" wrench and 1/8" Allen wrench. See *Figure 2-13*.

Figure 2-13 Tighten Wheel Angle Sensor Arm Connection




Note: The rod should aim toward the front of the vehicle.

3. Attach the linkage arm to the linkage bracket and tighten the ball joint to the bracket with a 1/2" and 9/16" wrench. See *Figure 2-14*.

Figure 2-14 Wheel Angle Sensor Linkage Bracket



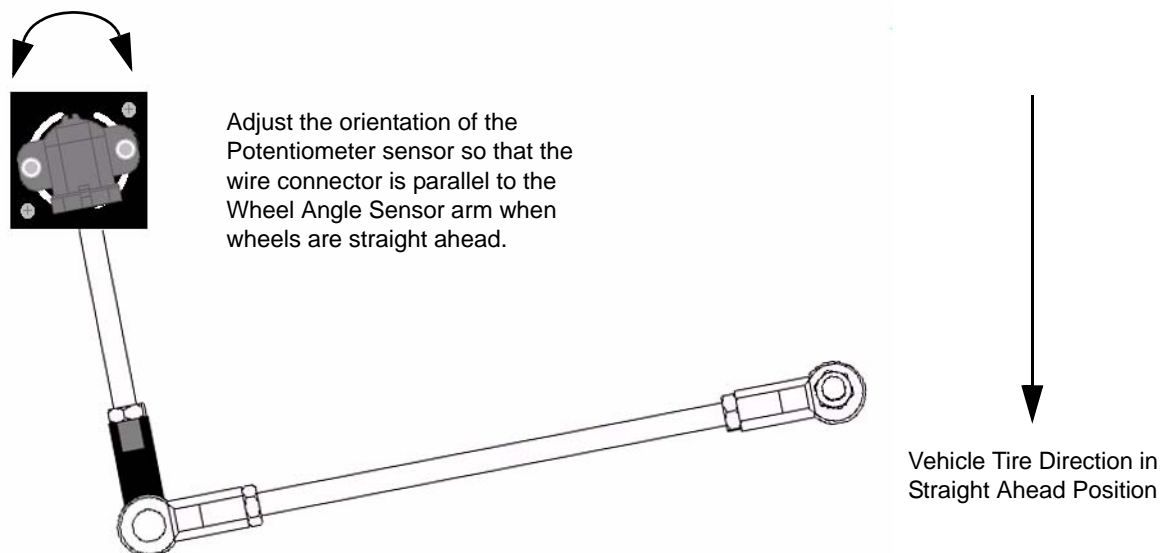
	<p style="text-align: center;">⚠ WARNING</p> <p>Always shut down the vehicle when working around the steering axle and checking and adjusting the Wheel Angle Sensor rod lengths. The steering axle could move suddenly and cause severe injury or death.</p>
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Note: Never attach the linkage rods to Wheel Angle Sensor rod and turn the steering wheels manually or automatically until the fit has been verified. The linkage rods must remain apart while the steering wheels are turned to the maximum right and left positions and then temporarily attached at these positions. Failure to do this may cause the Wheel Angle Sensor or vehicle to become damaged.

Note: After the linkage rods are assembled in the following steps, they should move freely without touching any other parts and without overextending. Make any necessary adjustments to the linkage rods if there is an interference problem.

4. With the linkage rods disconnected, manually turn the steering wheel so that the wheels are centered (the vehicle will travel straight ahead when moving).
5. Temporarily attach the linkage rods.
6. Rotate the Wheel Angle Sensor potentiometer on top of the mounting block so that the plastic wire connector is parallel to the Wheel Angle Sensor rod. See *Figure 2-15*.

Figure 2-15 Adjust Potentiometer Angle to Match Straight Ahead



7. After the potentiometer has been adjusted, tighten the potentiometer bolts with a 3/8" wrench and 5/32" Allen wrench.
8. Disconnect the linkage rods and turn the steering wheel manually to the full left position.
9. Reattach the linkage assembly and verify that the sensor or rods will not be damaged. Adjust the rod lengths as necessary. *Figure 2-16* shows the left axle installation in the maximum left position.

Figure 2-16 Confirm Maximum Steer Left Position on Left Axle



10. Disconnect the linkage rods and turn the steering wheel manually to the full right position.
11. Reattach the linkage assembly and verify that the sensor will not be damaged. Adjust the rod lengths as necessary. *Figure 2-17* shows the left axle installation in the maximum right position.

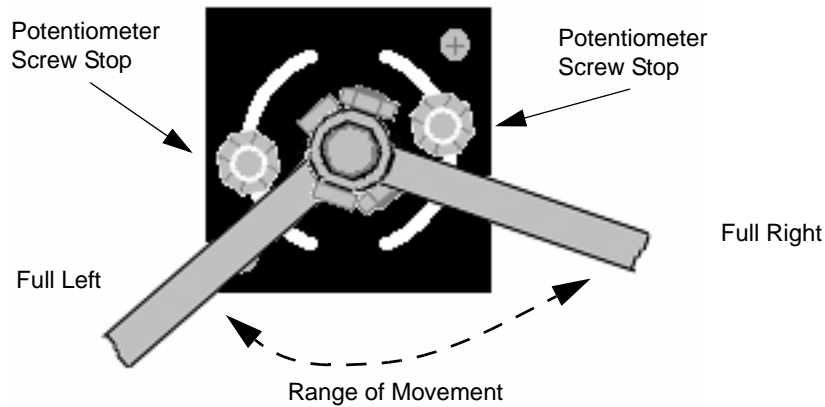
Figure 2-17 Confirm Maximum Steer Right Position on Left Axle



12. Repeat Step 4. through Step 11. until the rod lengths have been adjusted and the potentiometer is centered to get the maximum sensor movement. The maximum movement is reached when the Wheel Angle Sensor rod will sweep from approximately 3/16 inch (5mm) from both bolt heads holding the potentiometer on to the block when the wheels are turned to the maximum right and left positions. See *Figure 2-18*.

Figure 2-18 Maximum Sensor Movement

Wheel Angle Sensor as Seen from the Bottom



Note: An Ohm meter can also be used to determine if there is enough sensor movement. Connect the Ohm meter to pins A and B of the Wheel Angle Sensor. Measure the Ohm reading at the maximum left and right position. After subtracting the smaller number from the larger number, there should be at least a 3.75 kilohms change. The reading should also never go below 1.6 or higher than 6.6 kilohms as this is reaching the limits of the potentiometer and could damage the sensor.

13. Once all the adjustments are complete, tighten all lock nuts and bolts on the linkage and Wheel Angle Sensor rod. A 1/2" and two 9/16" wrenches are required to tighten all the connections.
14. *Figure 2-19* shows the completed Wheel Angle Sensor installation.

Figure 2-19 Completed Wheel Angle Sensor Installation



SA Module Installation

The **SA Module Installation** chapter contains information in the following sections:

- *SA Module Mounting Orientation*
- *Mount the SA Module*

SA Module Mounting Orientation

The SA Module can also only be mounted in certain orientations. *Figure 3-1* shows the correct mounting positions and *Figure 3-2* shows incorrect mounting positions.

Figure 3-1 Correct SA Module Mounting Orientations

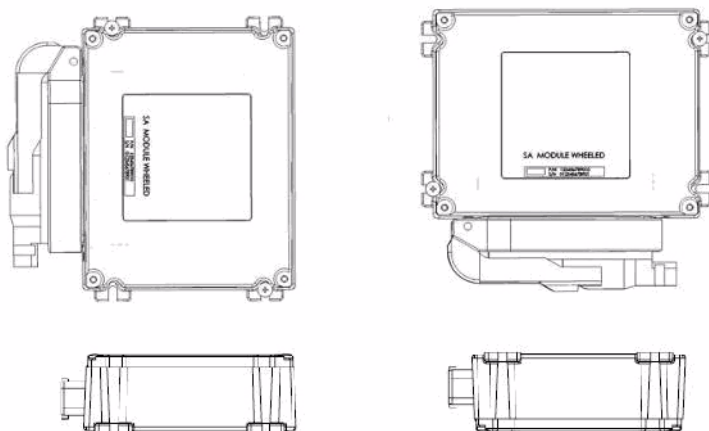
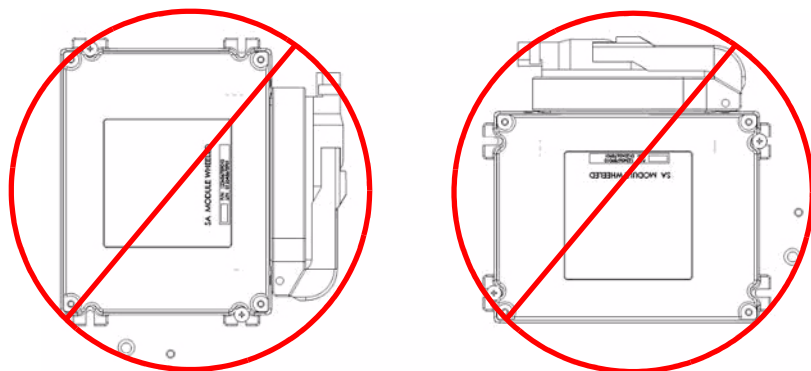


Figure 3-2 Incorrect SA Module Mounting Orientations



Mount the SA Module

Due to the variety of options available on vehicles and the possible configuration differences, it may be necessary to install the SA Module in location other than the example shown here. If an alternative location is required, choose a location where the SA Module can be protected from damage from moving parts or crop debris and excessive moisture from weather and cleaning equipment.

1. Locate the mounting position below the cab's center. See *Figure 3-3*. (Alternate mounting locations are shown in *Figure 3-4* and *Figure 3-5*.)

Figure 3-3 Identify Cab Center



Cab Center

Figure 3-4 Left-hand Side Above Wheel Mounting



SA Module

Figure 3-5 Left-hand Side Below Ladder Platform Mounting



2. Locate the threaded hole in the cab's base. See *Figure 3-6* (if using the location under the cab center).

Figure 3-6 Locate Threaded Hole



Threaded Hole

3. Attach SA Module bracket to SA Module as shown in *Figure 3-7* using a Phillips head screwdriver.

Figure 3-7 Attach Bracket to SA Module



4. Mount the SA Module (and bracket), as shown in *Figure 3-8*, by using a 13mm wrench to tighten the M8 x 25 bolt, as shown in *Figure 3-9*.

Figure 3-8 Mount SA Module



Figure 3-9 Tighten M8 Bolt





Roof Module Installation

This **Roof Module Installation** chapter contains information in the following sections:

- *Safety Notes*
- *Roof Rail Installation*

Safety Notes

- The AutoSteer system must be powered OFF when installing or removing the Roof Module.
- The Roof Module must always be firmly secured to the Roof Rail using the hardware whenever the vehicle is in operation to prevent the Roof Module from releasing from its bracket and falling.
- The Roof Module must be removed when transporting the vehicle at speeds above 30 mph.
- Ensure you are in a stable position on the combine platform when removing the Roof Module, so that you do not fall or drop the Roof Module.
- Use a ladder to install the AutoSteer Roof Rail.

	<div data-bbox="667 1089 935 1134"> WARNING</div> <p data-bbox="440 1163 1071 1247">Ensure that you are in a stable position on the vehicle platform when installing or removing the Roof Rail and Roof Module so you do not fall.</p>
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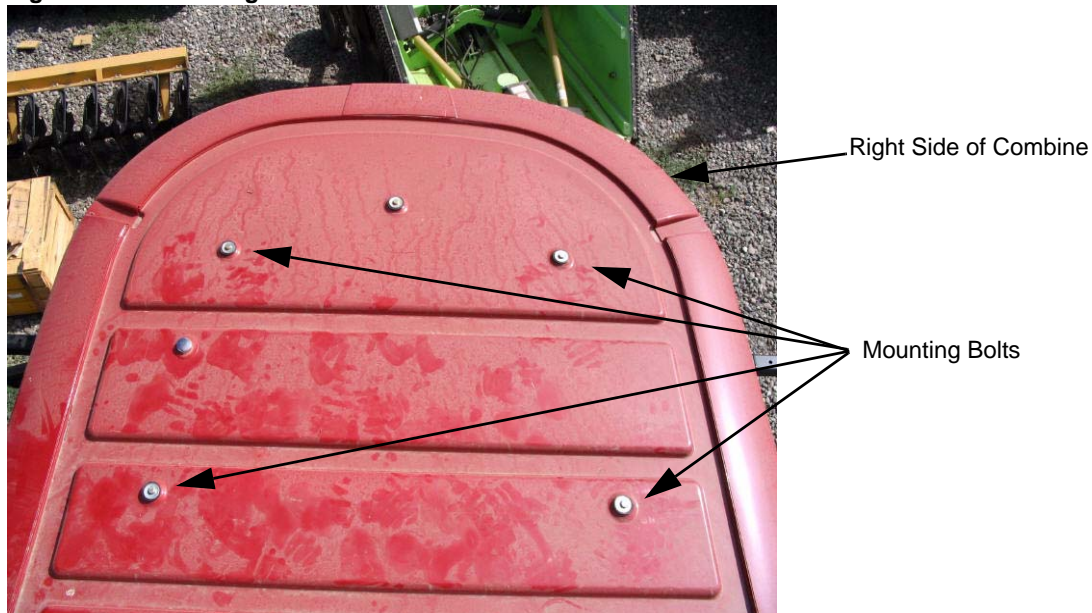
Roof Rail Installation

1. Place the ladder as close as possible to the side of the cab.

Note: The ladder is necessary to install the Roof Rail and Roof Module.

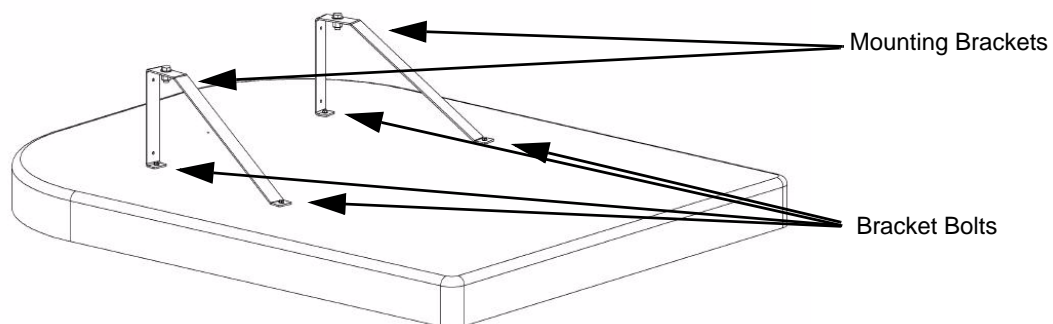
2. Locate the four bolts on the roof cab, as shown in *Figure 4-1*.
3. Remove the two bolts on each side. Use a 13mm socket and ratchet.

Figure 4-1 Mounting Bolt Locations



4. Install the two mounting brackets on the cab roof in the direction shown in *Figure 4-2* using the four longer screws included in your kit.

Figure 4-2 Mounting the Roof Brackets



5. Center the Roof Rail over the brackets and then mount it as shown in *Figure 4-3*. Secure the Roof Rail using the two large bolts, nuts and washers supplied. Tighten securely with a 24mm socket and ratchet with 24mm wrench.

Figure 4-3 Installing the Roof Rail



6. The entire Roof Rail should appear as shown in *Figure 4-4*.

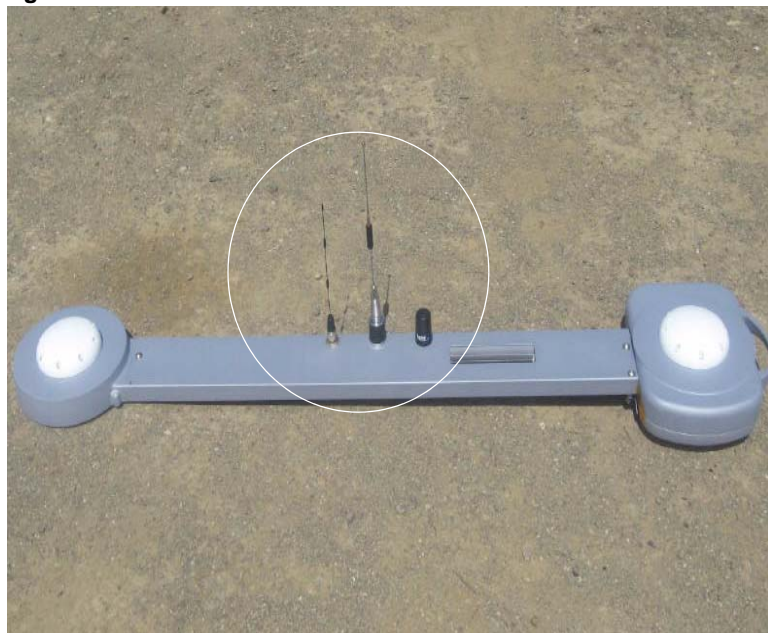
Figure 4-4 Completed Roof Rail



7. Attach the three antennas to the proper Roof Module antenna connections. See *Figure 4-5*.

Note: Hand tighten the connections. Do not over tighten.

Figure 4-5 Attach the Antennas



8. Remove the locking pin from the Roof Rail. See *Figure 4-6*.

Note: Press the button on the end of the handle to allow the pin to be removed.

Figure 4-6 Remove Locking Pin



9. Place the Roof Module on the Roof Rail. See *Figure 4-7*.

Figure 4-7 Attach Roof Module



10. Reinsert the locking pin into the Roof Rail. See *Figure 4-8*.

Figure 4-8 Reinsert Locking Pin



11. The completed Roof Module should appear as shown in *Figure 4-9*.

Figure 4-9 Completed Roof Module Installation



Display Installation

This **Display Installation** chapter contains information for installing and adjusting the Display in the following sections:

- *Introduction*
- *Three Hole Installation*
 - *Three Hole Installation*
 - *Five Hole Installation*

Introduction

This manual provides the instructions for installing the RAM Mount Ball in the cab so that the Display can be attached later. Refer to your Display's User Manual for instructions on installing the Display.

Installation Procedure



1. Determine if there is already a M10 threaded hole in the door frame (see *Figure 5-1*). If so, the Display Bracket can be mounted in the middle hole. In this case, use the *Three Hole Installation* procedure.
2. If not, use the *Five Hole Installation* procedure.

Figure 5-1 Using a Pre drilled M10 Threaded Hole



Three Hole Installation

1. Drill out the middle hole in the bracket to 25/64" diameter.

	<div data-bbox="672 344 927 386"> CAUTION</div> <p data-bbox="435 415 1068 474">Use safety glasses to avoid eye injury, when drilling, tapping or using power tools.</p>
---	--

2. Drill at least 2 13/64" holes in the cab frame for the self-tapping screws using the bracket as a template.
3. Position the bracket on the right-hand side of the cab. See *Figure 5-2*.

Figure 5-2 Position Bracket on Cab's Right-hand Side



4. Secure the bracket with two screws and the M10 bolt (which goes into the middle hole).

Note: Use the 3/8 socket wrench to tighten the screws, which are self-tapping and cut their own threads in the steel.

5. Install the RAM Mount Base Ball on the bracket using the four screws and lock nuts provided. Tighten the bolts using a #2 Phillips screwdriver and 3/8" wrench. See *Figure 5-3*.


Figure 5-3 Attaching the RAM Mount Ball



Note: Refer to the Display User Manual for the remaining Display specific installation instructions.

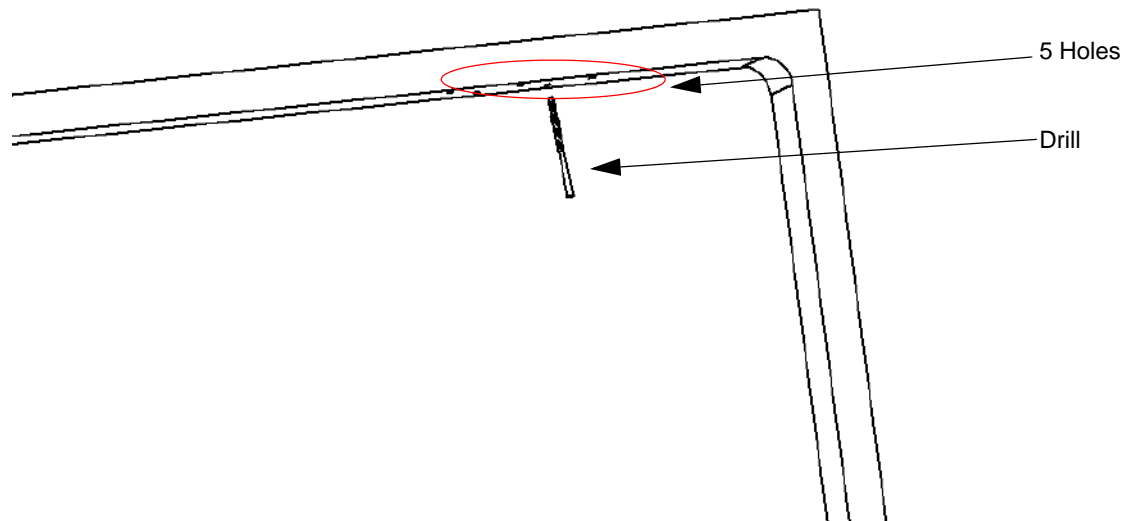
Five Hole Installation

1. Drill five 13/64" holes in the cab frame for the screws using the bracket as a template. See *Figure 5-4*.

	<p style="text-align: center;">⚠ CAUTION</p> <p>Use safety glasses to avoid eye injury, when drilling, tapping or using power tools.</p>
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Note: Drill one hole to secure the bracket with one screw before drilling the remaining holes. The holes should be drilled so that the bracket mounts in the position shown in *Figure 5-4* when looking at the right side door from inside the cab.

Figure 5-4 Drilling Bracket Screw Holes



2. Position the bracket on the right-hand side of the cab. See *Figure 5-5*.

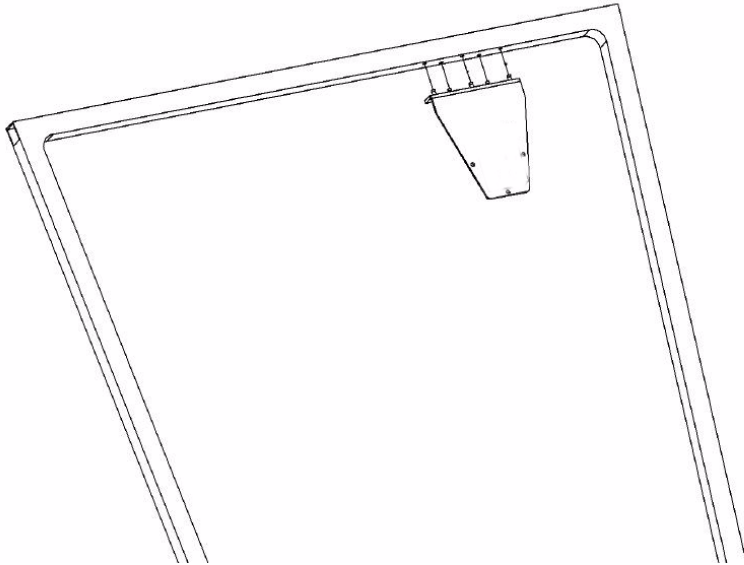
Figure 5-5 Position Bracket on Cab's Right-hand Side



3. Secure the bracket with five screws. See *Figure 5-6*.

Note: Use the 3/8 socket wrench to tighten the screws, which are self-tapping and cut their own threads in the steel.

Figure 5-6 Securing the Monitor Bracket



4. Install the RAM Mount Base Ball on the bracket using the four screws and lock nuts provided. Tighten the bolts using a #2 Phillips screwdriver and 3/8" wrench. See *Figure 5-7*.

Figure 5-7 Attaching the RAM Mount Ball



Note: Refer to the Display User Manual for the remaining Display specific installation instructions.

Connecting System Cables

This **Connecting System Cables** chapter provides information in the following sections for connecting the Main Cable Harness and the SA Module Cable Harness to the various vehicle and steering system components:

- *SA Module Harness*
 - *SA Module Connection*
 - *Wheel Angle Sensor Connection*
 - *Steering Valve Connections*
 - *Steering Wheel Encoder Connection*
- *Main Cable Harness*
 - *Roof Module*
 - *Main Cable Harness Connections Inside Cab*
 - *SA Module Harness*
 - *Cab Power*

SA Module Harness

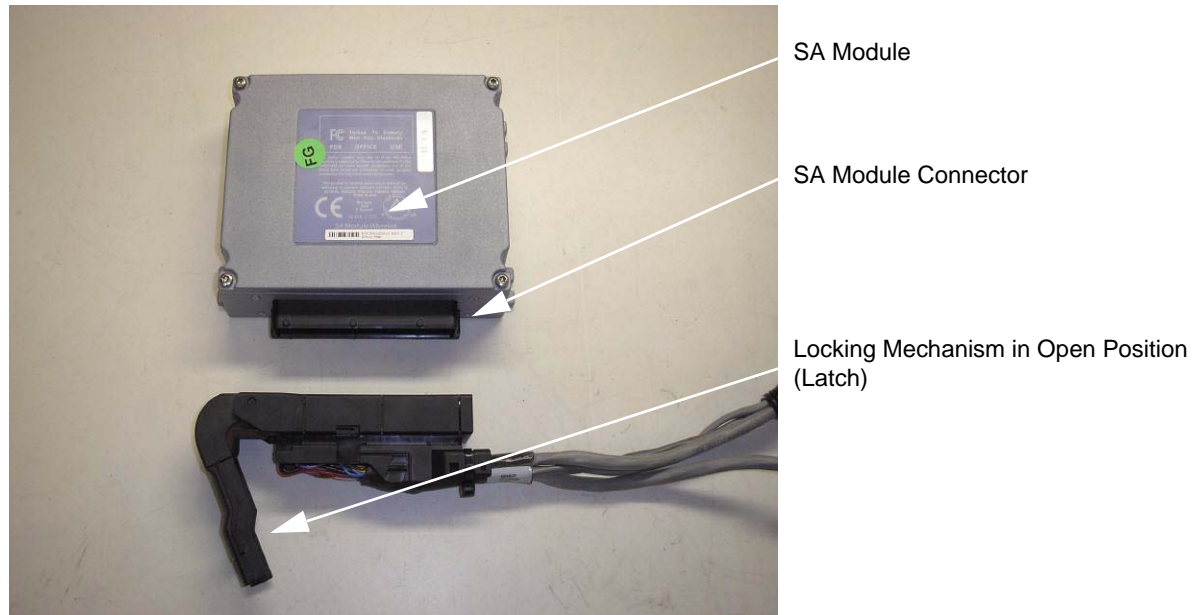
This **SA Module Harness** section contains the following sub-sections:

- *SA Module Connection*
- *Wheel Angle Sensor Connection*
- *Steering Valve Connections*
- *Steering Wheel Encoder Connection*

SA Module Connection

1. Align the SA Module Harness connector to the SA Module. See *Figure 6-1*.
2. Open the connector latch lever. See *Figure 6-1*.

Figure 6-1 Connecting SA Module Connector



3. Press the SA Module Harness connector onto the SA Module connector.

Note: You can damage the connectors if you force them into position. Do not force them together or use tools.

4. Press the latch lever closed until it clicks and locks the connector. See *Figure 6-2*.

Figure 6-2 Closing the SA Module Connector



Note: If you need to disconnect the SA Module connector, you must open the latch lever before attempting to pull the connectors apart.

5. Close the cable connector locking mechanism as shown in *Figure 6-3*.

Figure 6-3 SA Module Connector (closed).



6. Route the cable toward the Main Cable Harness.
7. Route the other half of the SA Module Harness under the cab towards the Steering Valve and Wheel Angle Sensor.
8. Proceed to the *Wheel Angle Sensor Connection* procedure.

Wheel Angle Sensor Connection

Note: This connection to the Wheel Angle Sensor is only required when using the AutoSteer Wheel Angle Sensor.

1. Route the Wheel Angle Sensor cable along the left side of the combine frame and secure with cable ties as shown in *Figure 6-4*.

Note: Keep all cables away from moving parts.

Figure 6-4 Routing SA Module Harness Wheel Angle Sensor Cable



2. Route and secure the Wheel Angle Sensor cable from the SA Module beneath the cab to the Wheel Angle Sensor.

3. Attach the cable to the connector on the Wheel Angle Sensor. See *Figure 6-5*.
4. Use the extension cable supplied if necessary.

Figure 6-5 Wheel Angle Sensor Connector



Wheel Angle Sensor Connector

Steering Valve Connections

1. Locate the vehicle's Steering Valve. See *Figure 6-6*.

Figure 6-6 Steering Valve Location

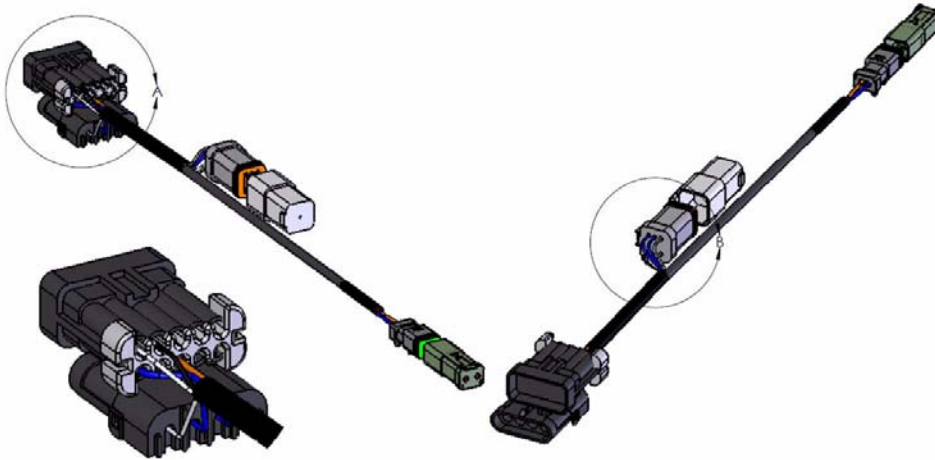


Steering Valve Location

2. Locate the 201-0438-01 cable. See *Figure 6-7*.

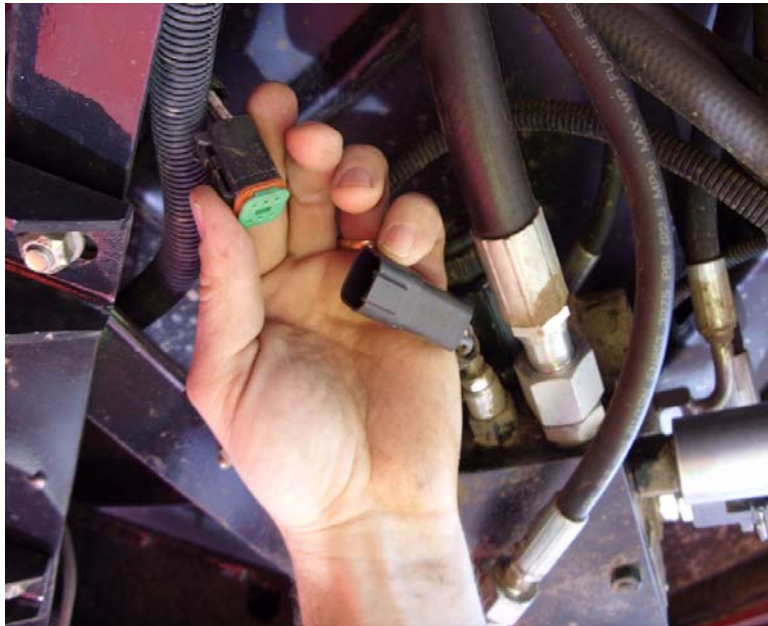
Note: The adapter cable connects to the existing 10-pin and 4-pin connectors on the SA Module Harness. The adapter cable has a 6-pin connector that connects to the existing Steering Valve or valve harness on the machine.

Figure 6-7 SA Module Harness Adapter Cable (PN: 201-0438-01)



3. Disconnect the factory valve connector. See *Figure 6-8*.

Figure 6-8 Disconnecting the Factory Steering Valve Connector



4. Connect the adapter cable pin (201-0438-01) to the factory harness and the normal wheeled SA Module Harness. See *Figure 6-9* and *Figure 6-10*.

Figure 6-9 Factory Harness to SA Module Harness Adapter Connection

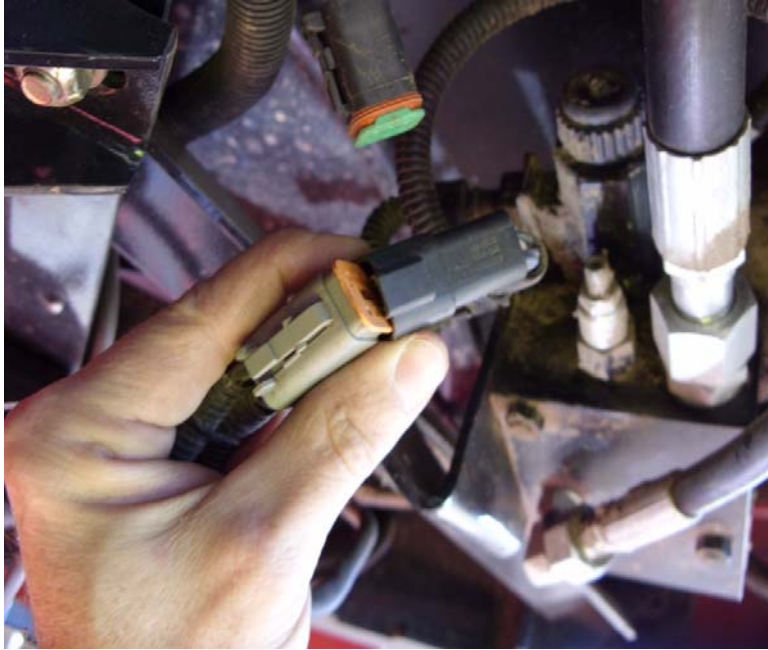


Figure 6-10 Cable Adapter to SA Module Harness Connection



Steering Wheel Encoder Connection

1. Run the encoder cable under the cab and up through this hole in the floor. See *Figure 6-11*.

Note: The steering encoder is used for AutoSteer manual kick-out when the driver turns the wheel.

Figure 6-11 Encoder Cable Through Cab Floor



Steering Encoder Cable Entering Cab Floor

2. Run the encoder lead under the floor mat or around the edge of the floor mat to the steering column. See *Figure 6-12*.

Figure 6-12 Going Under Floor Mat



3. Lift up the rubber boot at the base of the column to expose the connectors. See *Figure 6-13*.

Figure 6-13 Lifting Rubber Boot



4. Pull out Deutsch connector between steering encoder and factory loom. See *Figure 6-14*.

Figure 6-14 Accessing the Steering Encoder Connector



5. Separate the encoder wiring harness (2-pin Deutsch with blue and yellow wires). See *Figure 6-15*.

Figure 6-15 Separating the Encoder Wiring Harness



6. Connect the encoder connector onto the steering encoder connector. See *Figure 6-16*.

Figure 6-16 Connected Steering Encoder Connector



7. Place the terminator supplied with the kit on the original vehicle steering encoder harness connector.

Main Cable Harness

This Main Cable Harness section contains the following sub-sections:

- *Roof Module*
- *Main Cable Harness Connections Inside Cab*
- *SA Module Harness*
- *Cab Power*

Roof Module

1. Locate hole in the floor to pass through the harnesses. See *Figure 6-17*.

Figure 6-17 Pass-through Harnesses Location (in Cab Floor)



2. Run the antenna cables and steering cable through existing holes in the cab's floor. See *Figure 6-18*.

Figure 6-18 Cable Pass-through Holes



3. Pull the Main Cable Harness through hole in floor next to seat (as shown in *Figure 6-19*). Leave the bulk of the unused harness outside the cab.

Note: If a cable pass through hole is not present, you can drill a hole with a power drill and a hole saw bit. Check under the cab before drilling to ensure cables or components will not be damaged by drilling the hole.

Figure 6-19 Pull Harness Through Hole



4. Run the antenna cable up the left-hand side of the cab's rear. See *Figure 6-20*.

Figure 6-20 Route Antenna Cable



5. Attach the antenna cable to the roof using a “P” clamp. See *Figure 6-21*.

Figure 6-21 Attach Antenna Cable to Roof



6. Attach the cable to the Roof Module. See *Figure 6-22*.

Orient the 12-pin connector so the word “TOP” on the cable connector is pointing upwards (towards the sky). Insert the cable connector into the Roof Module. Push the connector in until it “clicks” and locks in place. To remove, grasp the connector to compress the two side latches and pull away from the Roof Module.

Note: Do not force the connector. If the connector does not engage easily, check the correct orientation of the connector.

Figure 6-22 Roof Module Main Cable Harness Connection



7. Attach the LAN connector to the Roof Module. See *Figure 6-23*.

Orient the Ethernet cable connector with the connector under the receiver so the contacts on the cable connector are pointing towards the back of the vehicle. (This will usually be towards your right side if you are standing on the left side of the vehicle and looking towards the Roof Module.) Slide the cable connector into the receiver and rotate the plastic bayonet sleeve clockwise to lock the connector. The bayonet sleeve will “click” when it fully engages and locks. To remove the cable, rotate the bayonet sleeve counterclockwise until it “clicks” and pull the connector down or away from the Roof Module.

Note: Do not force the connector. If the connector does not engage easily, check the correct orientation of the connector.

Figure 6-23 Roof Module Ethernet Connection



Main Cable Harness Connections Inside Cab

Figure 6-24 shows the Main Cable Harness connections used inside the cab. Table 6-1 shows the functions of the Main Cable Harness cab connectors. Refer to your Display's User Manual for instructions on connecting the Main Cable Harness connections shown to the correct ports and harnesses on the Display and Display cables.

Figure 6-24 Main Cable Harness Cab Connections

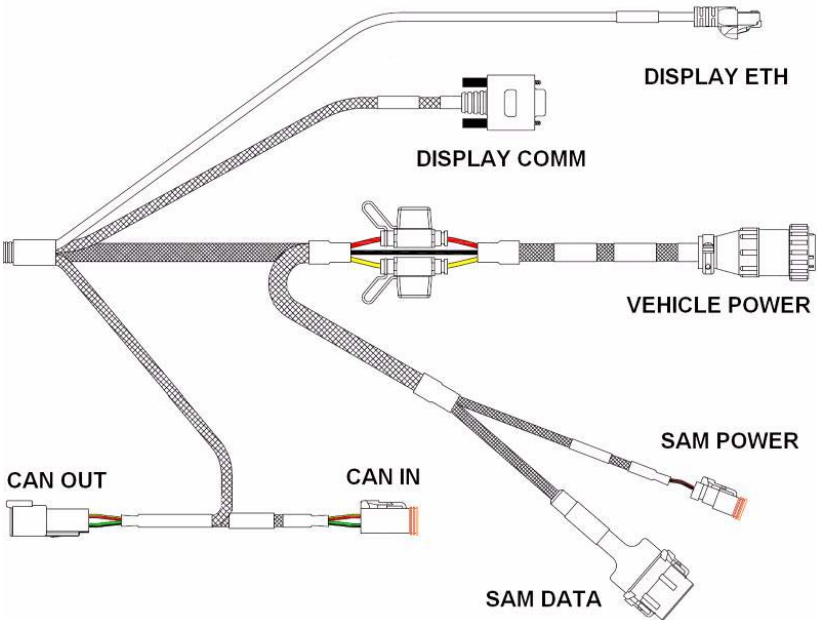


Table 6-1 Cab Main Cable Harness Connector Functions

Main Cable Harness Connector	Connector Function
DISPLAY ETH	Display Ethernet Port (RJ-45)
DISPLAY COMM	Display Communication Port (DB-9)
VEHICLE POWER	12 Volt Power Supplied by Display Harness
SAM POWER	Power for SA Module
SAM DATA	Data for SA Module
CAN IN	Not Used for This Installation
CAN OUT	Not Used for This Installation

SA Module Harness

1. Connect the 12 pin data and 2 pin power connectors between the Main Cable Harness and the SA Module Harness. See *Figure 6-25*.

Figure 6-25 SA Module Harness to Main Cable Harness Connections



Cab Power

Note: Refer to your Display installation instructions. If the Display instructions require a 3-pin power connection in the cab, connect the power adapter cable (PN: 201-0156-01) to the vehicle battery as follows. Otherwise, when the Display has it's own battery power cable, skip this section.

1. Connect the power adapter cable (PN: 201-0156-01) directly to the battery or a 12V source in the cab that can safely supply up to 15A. See *Figure 6-26*. Connect the Red (+) power cable adapter wire to 12 volt power on the vehicle protected by a 15A fuse by using the in-line fuse holder and 15A fuse supplied with the power cable. Connect the Black wire to Ground. The White wire does not need to be connected. *Table 6-2* shows the Power Cable Adapter pinout.

Figure 6-26 Power Cable Adapter

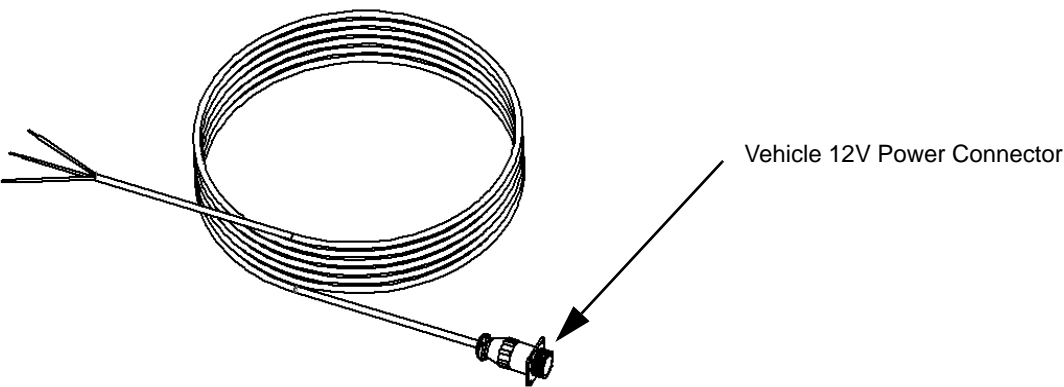


Table 6-2 Power Adapter Cable Pinout

Wire Color	Function
Red	12 V Unswitched Power
White	12 V Switched Power
Black	Ground

Final Hardware Installation Checklist

This **Final Checklist** chapter contains information in the following sections:

- *Introduction*
- *Final Installation Checklist*

Introduction

The Transducer Calibration procedure is not required in this installation. AutoSteer manual kickout is provided by the vehicle's steering encoder instead of a pressure transducer.

Note: Refer to your system user manual for system setup calibration and tuning details.

Final Installation Checklist

Note: The Final Hardware Installation Checklist is on the next page. Fill in the checklist after the installation. You should keep a copy of this checklist for future reference when servicing the AutoSteer system.

Machine Model: _____ Year: _____ Serial #: _____

Customer Name: _____

Location/Address: _____

AutoSteer Installation Kit Part Number: _____

NOTES

Name of Installer: _____ Date: _____

System Installation Checklist

1. Wheel Angle Sensor installed and all fasteners are tight. (optional) ☐
2. Monitor Bracket installed and all fasteners are tight. ☐
3. Roof Rail is installed and all fasteners are tight. ☐
4. SA Module is installed and all fasteners are tight. ☐
5. All cable ends are connected. ☐
6. All cables are secured with cable ties. ☐

AutoSteer Performance Checklist

1. Complete the AutoSteer system calibration. ☐
2. Complete the AutoSteer system tuning. ☐
3. Check total Wheel Angle Sensor counts. (optional) ☐ Value _____
4. Line acquisition is good. ☐
5. On-line steering is good. ☐
6. Manual override (kick-out) is working. ☐
7. Steering speed from lock-to-lock is good. ☐ Value _____ Sec.

Note: Refer to your system user manual for system setup calibration and tuning details.
